REPLY

To: Examiner of the Patent Office

1. Identification of the International Application

PCT/JP03/12771

2. Applicant

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4. Date of Notification: 15.06.2004

5. Subject Matter of Reply:

This is a reply to the first Written Opinion mailed June 6, 2004.

The applicant has amended claims 1, 2, 4 to 7 and 11 to 14 and added new claim 18 with the Amendment separately filed.

Claims 6 and 13 are supported by Figs. 3, 7, 8 and the like.

The Examiner understands that the device of claim 6 is a bottom-emission type light-emitting device. The Examiner's understanding is not correct.

The Examiner asserts that Figs. 1B and 2A and paragraphs [0058]-[0063] of reference D1 (US2002-21268A) disclose a bottom-emission type light-emitting devices. However, for a skilled person reading paragraphs [0058]-[0063] of D1, it is not clear as to whether the structures shown in Figs. 1B and 2A of D1 are bottom emission type or top emission type devices.

As described above, it is considered that claims 1 to 18 possess novelty and inventive step.

AMENDMENT

(amendment based upon the provision of Article 11 of said Law)

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4. Item to be amended: Claims

5. Subject Matter of Amendment

(1) In claim 1, after the passage "corresponding to said different emission spectra" on page 35, lines 15-16, the following wording has been inserted:

" wherein said organic electroluminescence devices having the different emission spectra are at least one organic electroluminescence device and another organic electroluminescence device among said plurality of organic electroluminescence devices,

wherein a wavelength of emission of said one organic electroluminescence device is longer than a wavelength of emission of said another organic electroluminescence device,

wherein a thickness of a first charge-transporting layer provided between said first electrode and said light-emitting layer in said one organic electroluminescence device is equal to a thickness of a first charge-transporting layer provided between said first electrode and said light-emitting layer in said another organic electroluminescence device, and

wherein the thickness (da1) of said first charge-transporting layer is obtained by the following equation:

$$n\,1\,d\,a\,1 = \frac{\lambda\,a}{4}\,(1+2\,i) \qquad i = 0,\ 1,\ 2,\ \ldots\ldots \qquad (c)$$

wherein n1 denotes a refractive index of said first charge-transporting layer, and λ_a denotes a peak emission

wavelength of said another organic electroluminescence device".

Support for the above-mentioned change can be found in the description of "da1 = db1" on page 24, line 5 of the specification and the equation (c) on page 23, line 10 of the specification from which the "da1" is obtained.

(2) In claim 2, the passage "between a first charge-transporting layer and a second charge-transporting layer" on page 35, lines 20-22 has been changed to "between said first charge-transporting layer and said second charge-transporting layer".

(3) The wording of claim 4 has been amended corresponding to the new wording of claim 1.

(4) The wording of claim 5 has been amended corresponding to the new wording of claim 1.

(5) The wording of claim 6 has been amended corresponding to the new wording of claim 1.

(6) The wording of claim 7 has been amended without changing the subject matter of claim 7.

(7) The wording of claim 11 has been amended corresponding to the new wording of claim 1.

(8) The wording of claim 12 has been amended corresponding to the new wording of claim 1.

(9) The wording of claim 13 has been amended corresponding

to the new wording of claim 1.

(10) The wording of claim 14 has been amended without changing the subject matter of claim 14.

(11) New claim 18 has been added to be dependent on claim 1.

6. List of Attached Documents

(1) Replacement sheet of pages 35 to 40

CLAIMS

1. (Amended) A multicolor light-emitting device comprising a plurality of organic electroluminescence devices each having an organic compound layer including a light-emitting layer between a first electrode and a second electrode,

said plurality of organic electroluminescence devices having different emission spectra of two or more colors,

wherein light-emitting regions in the light-emitting layers of the organic electroluminescence devices having the different emission spectra are located in different positions in a layer thickness direction of the light-emitting layer corresponding to said different emission spectra,

wherein said organic electroluminescence devices having the different emission spectra are at least one organic electroluminescence device and another organic electroluminescence device among said plurality of organic electroluminescence devices,

wherein a wavelength of emission of said one organic electroluminescence device is longer than a wavelength of emission of said another organic electroluminescence device,

wherein a thickness of a first charge-transporting layer provided between said first

electrode and said light-emitting layer in said one organic electroluminescence device is equal to a thickness of a first charge-transporting layer provided between said first electrode and said light-emitting layer in said another organic electroluminescence device, and

wherein the thickness (da1) of said first charge-transporting layer is obtained by the following equation:

$$n1\,da1 = \frac{\lambda a}{4}(1+2i) \quad i = 0,\ 1,\ 2,\ \ldots\ldots \qquad (c)$$

wherein n1 denotes a refractive index of said first charge-transporting layer, and λa denotes a peak emission wavelength of said another organic electroluminescence device.

2. (Amended) The multicolor light-emitting device according to claim 1, wherein said organic compound layer has a stacked structure in which the light-emitting layer is sandwiched at least between said first charge-transporting layer and said second charge-transporting layer.

3. The multicolor light-emitting device according to claim 2, wherein said first electrode is a reflecting electrode that reflects light;

said second electrode is a transparent electrode; and

said first charge-transporting layer is located

at a first electrode side of the light-emitting layer.

4. (Amended) The multicolor light-emitting device according to claim 3, wherein a position of a light-emitting region in the light-emitting layer of said another organic electroluminescence device is closer to the first electrode of said another organic electroluminescence device in comparison with a position of a light-emitting region in the light-emitting layer of said one organic electroluminescence device with respect to the first electrode of said one organic electroluminescence device.

5. (Amended) The multicolor light-emitting device according to claim 3, wherein the light-emitting layer of the another organic electroluminescence device has a property of preferentially transporting holes;

the light-emitting layer of the one organic electroluminescence device has a property of preferentially transporting electrons;

said first charge-transporting layer is an electron-transporting layer; and

said second charge-transporting layer is a hole-transporting layer.

6. (Amended) The multicolor light-emitting device according to claim 3, wherein the light-emitting layer of the another organic electroluminescence device has a property of preferentially transporting electrons;

the light-emitting layer of the one organic

electroluminescence device has a property of preferentially transporting holes;

said first charge-transporting layer is a hole-transporting layer; and

said second charge-transporting layer is an electron-transporting layer.

7. (Amended) The multicolor light-emitting device according to claim 2, wherein the thickness of said light-emitting layer is in a range of 10 to 35 nm.

8. The multicolor light-emitting device according to claim 2, wherein a material and a thickness of said first charge-transporting layer are the same as those for all of the organic electroluminescence devices.

9. The multicolor light-emitting device according to claim 2, wherein a material and a thickness of said second charge-transporting layer are the same as those of all of the organic electroluminescence devices.

10. The multicolor light-emitting device according to claim 1, wherein said first electrode is a reflecting electrode that reflects light;

said second electrode is a transparent electrode;

said organic compound layer includes a first charge-transporting layer, the first charge-transporting layer being located at a first electrode side of the light-emitting layer.

11. (Amended) The multicolor light-emitting device according to claim 10, wherein a position of a light-emitting region in the light-emitting layer of said another organic electroluminescence device is closer to the first electrode of said another organic electroluminescence device in comparison with a position of a light-emitting region in the light-emitting layer of said one organic electroluminescence device with respect to the first electrode of said one organic electroluminescence device.

12. (Amended) The multicolor light-emitting device according to claim 10, wherein the light-emitting layer of said another organic electroluminescence device has a property of preferentially transporting holes;

the light-emitting layer of said one organic electroluminescence device has a property of preferentially transporting electrons; and

said first charge-transporting layer is an electron-transporting layer.

13. (Amended) The multicolor light-emitting device according to claim 10, wherein the light-emitting layer of said one organic electroluminescence device has a property of preferentially transporting electrons;

the light-emitting layer of said another organic electroluminescence device has a property of

preferentially transporting holes; and

said first charge-transporting layer is a hole-transporting layer.

14. (Amended) The multicolor light-emitting device according to claim 10, wherein the thickness of said light-emitting layer is in a range of 10 to 35 nm.

15. The multicolor light-emitting device according to claim 10, wherein a material and a thickness of said first charge-transporting layer are the same as those of all of the organic electroluminescence devices.

16. The multicolor light-emitting device according to claim 1, wherein said two or more different emission spectra are emission spectra exhibiting red, green and blue.

17. A display having the multicolor light-emitting device according to claim 1.

18. (New) The multicolor light-emitting device according to claim 1, wherein said first electrode is anode.